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Attracting Birds



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CONSERVATION BULLETIN NO. 1
FISH AND WILDLIFE SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

ATTRACTING BIRDS has both advantages and disadvantages, responsibilities as well as pleasures. Unless precautions are taken, local concentrations may result in damage to man's interests and also in hazards to the welfare of the birds themselves. To those who from deep appreciation of birds desire to attract them, and who, therefore, can be relied upon to guard against possible undesirable results of local overabundance, this bulletin is addressed. It is not only in itself an outline of the elements of attracting birds but it also refers the reader to more complete information on certain phases of the subject in earlier publications of the Bureau of Biological Survey now available only in libraries as well as to current documents of the Fish and Wildlife Service.

Attracting Birds

BY

W. L. McATEE

CONSERVATION BULLETIN NO. 1



UNITED STATES
DEPARTMENT OF THE INTERIOR

J. A. Krug, *Secretary*

FISH AND WILDLIFE SERVICE
Albert M. Day, *Director*

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Facing

Attracting Birds

Advantages and Disadvantages

FORMERLY there seemed to be no question about the desirability of attracting birds; now certain doubts have arisen. Some of the recently recognized handicaps pertain to the welfare of the birds themselves; others, to man's interests.

Because of the disease-transmission hazard it may be unwise to attract numbers of birds continually to the same spot. This danger is known to threaten species that pick from the ground food that may have been contaminated by the droppings of their own or other kinds of birds (including poultry) and must be assumed to exist in some degree for species that take food exposed on shelves or in any place where fouling by feces is possible. The remedy would seem to be to provide food in hoppers and other containers designed to guard against or entirely prevent contamination. Wild birds readily learn to feed from such devices.¹

Feeding waterfowl also is hazardous in bringing together heavily parasitized and healthy birds and if long-continued in the same place must be detrimental. When done in fall, it may induce the birds to remain where freezing later renders natural food supplies unavailable and so make them dependent upon continua-

tion of feeding. It would seem best, therefore, to avoid feeding waterfowl except during emergencies.

Another drawback to bird-attracting activities is that they may bring into a restricted area more birds than the natural food resources will support, in which event, any interruption to feeding is disastrous, particularly if it occurs when the adults have young in the nest that they are forced to desert.

Where pronounced dependence on feeding stations prevails, it is apparent that birds may be both diseased and pauperized. The results are no more admirable than in certain well-known instances of big-game overpopulations, the encouragement of which is now generally admitted to be a mistake.

In any case, full consideration should be given to the advantages and disadvantages of feeding before it is undertaken. Once begun, it should never slacken while there is need. Those desiring the local increase of birds should be prepared to do all that may be required to banish hazards to the creatures they seek to befriend.

Encouraging local overpopulations of birds may have results directly injurious to man's interests, in that the increased demand for food may cause the birds to resort to the products of garden, field, or orchard. The idea of planting fruit- or seed-bearing species to entice birds away from similar cultivated crops seems a

¹ Addresses of dealers in devices for attracting birds and a list of publications on the subject available from other sources are obtainable on request to the Fish and Wildlife Service, Interior Building, Washington 25, D. C.

good one—and putting it into practice is said to have had beneficial results in some places. On the other hand, it is noticeable that damage to crops often ensues where birds are concentrated by an abundance of some other food. Damage by birds almost always results where there is local overabundance. The economic phase, therefore, should always be given careful attention.

Despite all drawbacks, however, attracting birds has advantages. The premises with a large bird population certainly will be freer from insects and weeds than a comparatively birdless area. If kingbirds, purple martins, mockingbirds, grackles, and other pugnacious species are domiciled, they will be of aid in driving away crows and hawks that might prey upon poultry chicks or on wild birds and their eggs and young.

The greatest reward from attracting birds—doubtless also in most cases the main incentive for the practice—is human enjoyment. The activity, beauty, and songs of birds supply life, color, and charm. Birds ornament the homestead, entertain the senses, and afford natural companionship that is a joy to a majority of mankind. They are so keen and sprightly that they compel attention, so intensively alive and so in harmony with their environment as to inspire the beholder. In fact, they are such a thoroughly enjoyable feature of life that most people would not willingly part with them. The attempt to preserve and protect birds and to increase their numbers, arises, therefore, from choice, but all of these things should be done in a way that will jeopardize neither the welfare of the birds nor that of their human neighbors.

Means of Attracting Birds

PROTECTION

The prime requisite for increasing the number of birds in any area is protection, and the results are in direct proportion to its thoroughness. Besides being insured against every form of persecution by

humankind, birds must be defended from various natural foes. The most effectual single step to guard against four-footed enemies is to surround the proposed bird sanctuary with a fence (fig. 1) that should prevent entrance either by digging

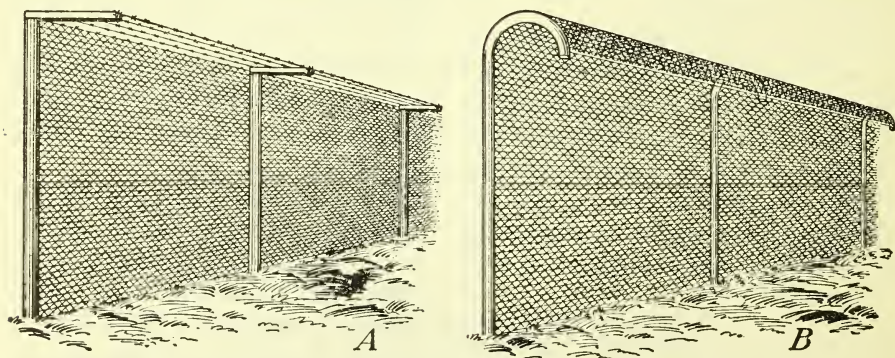


Figure 1.—Catproof fences: A, Overhang of barbed wire; B, overhang of wire netting.

or by climbing. It will serve its greatest use if it cannot be climbed and is therefore catproof.² For this purpose the erect part of the fence above ground should be 6 feet high and the weave not more than 1½-inch mesh. The overhang should be 2 feet wide, and if it is made of barbed wires, these should be strung not more than 1½ inches apart. Where it is impracticable to fence the whole premises, a small bird haven may be set aside, adequately safeguarded, and containing all facilities for the birds.

The device next best to an impenetrable fence consists of guards of sheet metal (fig. 2) on all nesting trees and on poles supporting bird houses and feeding apparatus. These should be used in any case where squirrels or snakes are likely to intrude, even within enclosed areas, as it is usually impracticable to fence out these animals. The guards should encircle the tree 6 feet or more above ground. Small terriers, trained to respect birds, may be useful in discouraging cats and other marauders.³

² Additional information on protective fencing may be obtained from the United States Department of Agriculture Farmers' Bulletin 1613, *Propagation of Upland Game Birds*, by W. L. McAtee, accessible in libraries.

³ United States Department of Agriculture publications contributed by the Bureau of Biological Survey, now a part of the Fish and Wildlife Service, giving instructions for the control of certain enemies are: Farmers' Bulletin 1102, *The Crow in Its Relation to Agriculture*, by E. R. Kalmbach, and Leaflet 96, *Protecting Poultry From Predacious Birds*, by W. L. McAtee, both accessible in libraries. United States Department of the Interior Conservation Bulletin 14, *Homes for Birds*, by E. R. Kalmbach and W. L. McAtee, which contains general suggestions for protection against enemies, and Wildlife Leaflet 269, *How To Control Vagrant Cats*, may be obtained from the Fish and Wildlife Service, Interior Building, Washington 25, D. C.

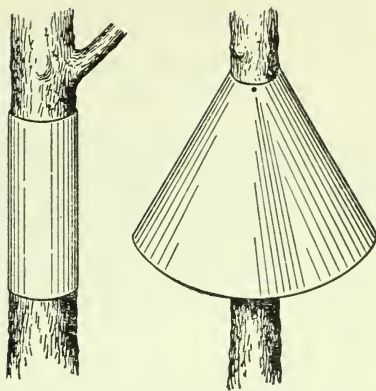


Figure 2.—Sheet-metal tree guards.

LANDSCAPING

Although elaborate landscaping of premises makes them attractive to birds, simpler treatment also is effective. Trees, shrubs, and vines are important in rendering a place livable for birds, but open spaces also are necessary. Openings allow plenty of light to reach the plants, permitting them to make luxuriant growth, increase their crops of fruit or seed, and supply more pasturage for insects, thus both directly and indirectly augmenting the food supply for birds. Amply crowned trees, well-rounded clumps of shrubbery, luxuriant vines in a few tangled thickets or on deeply mantled walls, and well-grassed, sunny openings combine to make a home where birds may thrive in numbers and variety. Premises affording sunlight and shade, cover and food, water and safety have the essentials for attracting birds. Choice of trees, shrubs, vines, and herbaceous plants for landscaping may well be made from the ranks of those that are notable in providing cover, food, and other necessities of bird life. Such plants are listed in Conservation Bulletin 7 cited on page 12.

ENCOURAGING NESTING

TREES, SHRUBBERY, AND OTHER FACILITIES

That robins love lawns is known to all, but these birds also must have trees with fair-sized limbs to support their nests, although they often accept such substitutes as arbor beams, partially sheltered small platforms, and other shelflike structures.

Mockingbirds, catbirds, thrashers, and cardinals make many excursions to open, grassy places in search of food, but they require shrubbery for shelter and nesting sites. Shrubs should be allowed to form thickets and should be pruned back severely when young so that they will produce numerous crotches suitable for supporting nests.

Evergreens have an especial attraction for grackles and jays, birds so large and of such buccaneering propensities that some may not want to encourage them.

Mature trees with a large and varied insect population are attractive to orioles, vireos, and warblers, and to titmice, chickadees, nuthatches, and woodpeckers, especially to the last four groups, if the trees are not too carefully groomed.

BIRD HOUSES

Modern tree surgery and the constant removal of old trees have resulted in a great diminution in the number of nesting sites for hole-frequenting birds. Fortunately, most of these birds will utilize artificial nest cavities or bird houses. All persons deeply interested in the welfare of birds will see that plenty of bird boxes are available; it is far better to do this than to lament the passing of the interesting hole-dwelling species.

Bird houses may be purchased from numerous dealers, or they may be built at

home, as they may be almost endlessly varied. The sizes useful for various birds, plans for making, and illustrations of numerous kinds are given by the Fish and Wildlife Service in Conservation Bulletin 14, *Homes for Birds*, which contains also suggestions as to providing roosting shelters and building material for tree-nesting birds. A bird house needs only partial shade, and houses on poles usually are taken. Martins prefer a house standing apart from trees. These are the only birds occupying colony houses; homes for other birds should have one room only. Entrances to boxes should be sheltered by projecting roofs and should face away from the prevailing wind and rainstorms.

All bird houses should be constructed so that the interior may be easily examined and cleaned. Not only is this important to permit the previous year's rubbish to be thrown out, but in the Northeast it will facilitate inspection for gypsy moth egg masses and cocoons. It is best to clean out bird houses after every brood; this not only invites reoccupation of the box but decreases the number of parasites. To destroy the latter, a strong disinfectant should be applied. The bulletin on bird houses gives more detailed information on sanitation.

SECURITY DURING THE NESTING SEASON

Birds as a rule not only do not want bird neighbors too near but are impatient also of human meddling and therefore should be granted as much privacy as possible during the incubating and brooding periods. Nests built in shrubbery are especially likely to come to a bad end if the birds are frequently disturbed.

If bobolinks, meadowlarks, pheasants, Hungarian partridges, bobwhites, and

other ground-nesting birds are to be favored, grass in the nesting fields should not be cut during the breeding season. When mowing must be done, flushing bars may be used to start the birds, and the nests thus found may be preserved in small clumps of growth spared for the purpose. Flushing bars are described by the Fish and Wildlife Service in Conservation Bulletin 12, Improving the Farm Environment for Wildlife.

SUPPLYING WATER

Nothing has more potent attraction for birds during hot weather than drinking and bathing places, and in droughts a water supply may save the lives of both adults and nestlings. Water may be provided in flowerpot saucers or other small receptacles, but in these it must be frequently renewed. A bird bath of larger proportions but also readily cleanable and refillable is better. It should be a pool not more than a few inches deep, the bottom sloping gradually upward toward the

edge. Both the bottom and the edge should be rough, so as to afford safe footing. A giant concrete saucer is an excellent device, or pools of various forms may be made of concrete or even of metal, if the surface is roughened or covered with gravel. The bird bath may be elevated (fig. 3), or it may be placed on the ground if in an open space where skulking enemies cannot approach unnoticed.

Pools larger than the conventional bird bath have been used to good effect in attracting birds. One 4 by 10 feet, not too large for many a yard, has a greater appeal than the small bath and, if supplied with plants for shelter and oxygenation, will maintain small fishes that will keep it free from mosquitoes.

A water supply is appreciated in winter as well as in summer. If running water cannot be provided, that supplied should be warmed or have glycerin added to delay freezing and should be renewed at least daily. Still better, an elevated bird bath can be made freeze-proof by building beneath it a fireproof compartment, in which a kerosene lamp may be kept burning low. The lamp chimney should be tin to radiate the heat; it should have a mica or asbestos plate over the top and a hole at one side near the lid. The lamp compartment should also have an opening near the bottom and one near the top to provide draft. Where electricity is available, a light bulb may be used as a source of heat.

Birds like to bathe in the spray of a water sprinkler or even in that of a hose in hand, and keeping areas well-watered also increases the food supply (earthworms and cutworms and other insects) for various birds, or at least makes it more available. Further, a trickle of water may make the mud that is needed by robins and cliff or eaves swallows in building



Figure 3.—Bird fountain and bath.

their nests; a tiny spot of well-soaked clay will suffice.

It may be mentioned that all bird bathing, however, is not in water; dust bathing also is popular. Turning the soil in a few small spots, preferably at the base of a sunny wall, will meet this need.

FEEDING

The environment as a whole must be satisfactory in order to hold birds, but it is safe to say that food is the most important single offering that can be made.

Insects and their larvae, which in summer are the principal food of many birds and almost the sole subsistence of most nestlings, are usually sufficiently abundant on well-landscaped premises that provide both open spaces and thickets and vigorous growths of herbs and vines, shrubs and trees. On game-bird farms, dense growths of vegetation, mostly grasses and clovers, are developed especially for the sake of the insects they will produce to feed the young birds.

Birds may also be supplied with food by means of catering, the most familiar phase of which is winter feeding, and by planting trees, shrubs, and herbs that produce the seeds or fruits they relish.

Birds respond most readily to man's hospitality during the season when the natural food supply is at its lowest ebb. Winter feeding, which in emergencies may be the means of saving many bird lives, has become very popular and has resulted in a better understanding of birds by mankind. Those who desire to have birds about their homes should not feel, however, that their power to attract them with food is gone when cold weather is over. Winter feeding easily passes into summer feeding, and experience proves that some birds gladly avail themselves throughout the year of this easy mode of

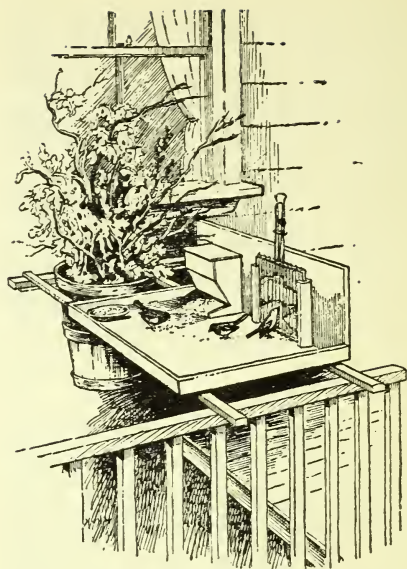


Figure 4.—Food shelf.

getting a living. Broken shells of hen's eggs are said to be relished, especially prior to and during the nesting season, and, when clean and sweet chopped suet is kept available, it is sometimes freely used by birds to feed their nestlings.

The foods commonly used in catering to the birds include suet or other fat, pork rinds, bones with shreds of meat, cooked meats, cured cheese, chopped hard-boiled eggs, mealworms, cut-up apples, birdseed, buckwheat, crackers, crumbs, coconut meat, cracked or whole corn and popcorn, corn bread, corn meal, broken dog biscuits, bread, doughnuts and pastry, fresh and dried fruits, hempseed, hominy, millet, cracked nuts and nut meats of all kinds, whole or rolled oats, peppers, pumpkin or squash seeds, scratch feeds, screenings, sunflower seeds, and wheat. The menu offered at any one time or place need not be complex; choice of a few things can be made from what is most readily available.

The following list gives groups of non-game birds commonly attracted by catering and the kinds of foods they readily

accept. "Kinds of foods" should be interpreted to include similar substances listed in the preceding paragraph.

GROUPS OF NONGAME BIRDS COMMONLY ATTRACTED BY CATERING AND THE KINDS OF FOODS THEY ACCEPT

BIRD GROUP	READILY ACCEPTED FOODS
Woodpeckers	Suet, cracked nuts, corn.
Jays	Suet, cracked nuts, corn, peanuts, sunflower seeds.
Titmice, chickadees, nuthatches.....	Suet, cracked nuts, shelled and broken peanuts, sunflower seeds, bread crumbs.
Mockingbirds, catbirds, thrashers, hermit thrushes, robins.	Cut apples and oranges, currants, raisins, bread crumbs.
Starlings ¹	Cut apples, currants, raisins, suet, scratch feed, table scraps.
Blackbirds, cardinals, towhees.....	Sunflower seeds, corn, shelled and broken peanuts, scratch feed.
Juncos, finches, native sparrows.....	Scratch feed, millet, wheat, screenings, small seed mixtures, bread crumbs.

¹ Many people do not wish to feed starlings, but it is difficult to avoid doing so unless some of the birds in flocks visiting a feeding station are killed. See also p. 10.

Food cakes attract a variety of birds. They may be made from a number of ingredients, among them corn meal, oatmeal, or other ground grains, bread crumbs, chopped peanuts or other nuts, raisins, and currants. They are prepared by scalding or partly cooking the cereals, combining with eggs, and baking, or by mixing with melted suet. Sometimes honey or other thick sweetening is added. The cakes are used whole, crumbled, or in containers. The food mixture before hardening may be put in small cans, coconut larders (fig. 5), or holes in food sticks (fig. 7).

If desired, earthworms, mealworms, ant eggs, and cage-bird foods may be provided for insect-eating birds, but they are luxuries. The natural food supply for the



Figure 5.—Coconut larder.

insect eaters usually is sufficient, but if cut down by unseasonable weather it will be supplemented adequately by providing chopped suet, suet mixtures, and food cake.

Bananas, cottage cheese, potatoes, boiled corn meal, cooked rice, and other moist foods are used, but freezing renders them less valuable. Table scraps and other foods that freeze in winter or sour in summer should be supplied only in quantities that will be promptly consumed. Residues should be cleaned up regularly. As suet may melt to some extent in hot weather it should be placed in self-draining containers. Sometimes it molds, in which event it should be promptly discarded. Any indications that food is in over-supply may be taken as a hint to reduce the quantity—certainly of perishable kinds. Salty foods, though attractive to a few birds, should not be furnished, as they seem to be deleterious to others. Fine, sharp grit can be supplied to advantage.

The methods of making these supplies available to birds are as varied as the dietary itself. A device commonly used is the



Figure 6.—Knitted food container.

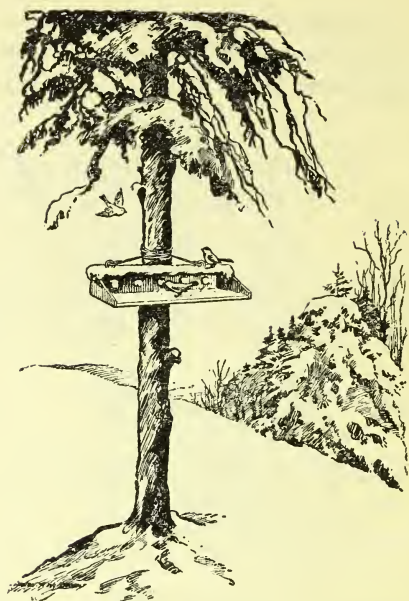


Figure 7.—Food stick with shelf.

food tray or shelf. This may be put on a tree or pole or at a sunny window or some other protected place about a building, or it may be strung upon a wire or other support on which it may be run back and forth. The last arrangement is useful in accustoming birds to feeding nearer and nearer a comfortable observation point. To prevent wind and rain from sweeping it clean and snow from covering the food, the shelf should have a raised ledge around the margin or should be placed in the shelter of a wall or shielded with evergreen branches on one or more sides. A shelf with a ledge and other protection is depicted in figure 4, which shows also a food hopper, useful in holding a considerable supply of food and in guarding it against contamination, and a broiler that serves suet conveniently and economically.

Devices that conserve food and keep it available regardless of weather conditions are best. An excellent one is a coconut

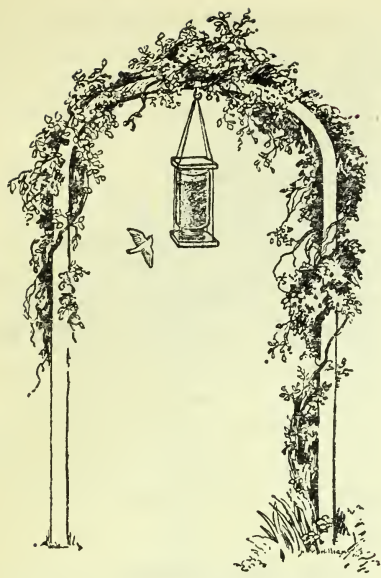


Figure 8.—Home-made food hopper.

with a hole cut in one end. The cavity is filled with chopped suet and nuts or other food mixture, and the coconut is suspended by a wire from a limb (fig. 5). The size of the hole regulates the character of the guests: if it is small, large birds cannot gobble the supply. The coconut meat as well as the stuffing is eaten. Peanut butter may be substituted for, or mixed with, chopped suet.

Cans with small openings may be used in the same manner. Food baskets of any desired size made of wire netting (soap shakers are good) or a metal grating may be hung up or fastened to the trunk of a tree. Where winter is severe, however, knitted containers of twine or yarn should be used, as the moist tongue or even the eye of a bird may adhere to frosted metal. They may be made in a variety of forms, one of which is illustrated in figure 6. Food mixtures in melted suet or other fat may be poured into holes made in a branch or stick (fig. 7) or in cracks or bark or over evergreen

branches. Ripe sunflower heads hung upside down either on tree branches or under other shelter are attractive to such bird acrobats as chickadees, titmice, and nuthatches. All these devices minimize or obviate the disturbing effects of stormy weather.

More elaborate apparatus for the same purpose comprises various forms of food hoppers and food houses. The food hopper shown in figure 4 is like those used for domestic fowls and may be purchased ready-made; other forms are manufactured especially for wild birds. A home-made hopper, the materials for which are a fruit jar, two pieces of board, and some wire, is illustrated in figure 8. It has proved very satisfactory in years of use. Another easily built hopper is shown in figure 9.

The food house, a permanent structure with solid roof and walls, one or more of them of glass to permit observation (fig. 10), shelters the food entirely from the weather. The lower tray shown in figure 10 serves to attract the birds, which then learn to feed from the upper one. A revolving food house is pictured in figure 11. It is mounted on a pivot and furnished with vanes large enough to keep the open side always from the wind. A hopper may be installed as a safe container for the food.

Game birds ⁴ and other ground feeders may be attracted by low hutches or wigwamlike shocks of corn or grain sheaves under which food may be scattered. The openings should be to the south.

Many who appreciate birds have degrees of preference and may not care to attract such numerous and greedy kinds

⁴Detailed instructions for catering to game birds can be found in the Department of the Interior Conservation Bulletin 13, *Feeding Wildlife in Winter*, by Wallace B. Grange.

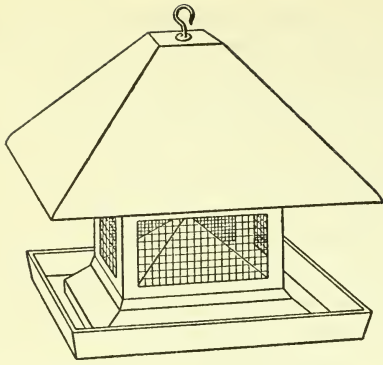


Figure 9.—Food hopper (roof detachable).

as starlings and English sparrows.⁵ Supplying such coarser foods as scratch feed and table scraps at a distance from the observation point and daintier tidbits nearby has the effect of dividing the patrons. The food supply for preferred species may be protected by offering it almost exclusively in containers and by hanging these on loose springs or by cords that will allow them to revolve freely. Wary species do not like these devices, but titmice, chickadees, nuthatches, and other confiding birds are not alarmed by them.

The mockingbird—and occasionally the catbird, cedar waxwing, and other fruit-eating birds—can be fed in winter by exposing soaked currants or raisins, the solid-fleshed grapes that are available in market at that season, and halved or

⁵ Suggestions for the control of these birds can be found in Wildlife Leaflet 172, Suggestions for Combating Objectionable Roosts of Birds with Special Reference to those of Starlings, by E. R. Kalmbach, obtainable from the Fish and Wildlife Service, Washington 25, D. C.; and in the United States Department of Agriculture Farmers' Bulletin 1571, The European Starling in the United States, by E. R. Kalmbach, and in United States Department of Agriculture Leaflet 61, English Sparrow Control, by E. R. Kalmbach, both accessible in libraries.

quartered apples. Small flat-headed nails driven part way into a feeding shelf or other support will hold pieces of apple forced down over them until the flesh is entirely consumed.

The hummingbirds, a very specialized group, may be catered to by supplying sirup in small bottles or drinking fountains. At first it may be necessary to draw their attention to this food with a brightly colored real or imitation flower, but after habit is established the sirup will be visited without such embellishment. A saturated solution of ordinary white sugar seems to be preferred, although other sirups and strained honey also are accepted.

CULTIVATING FOOD SUPPLIES

Another method of making food available is to plant trees, shrubs, and herbs that produce seeds or fruits and let the birds reap the harvest in their own way. Less of this has been done for the true seed-eating birds than for those fond of pulpy fruits. The reason is obvious, for



Figure 10.—Stationary food house.

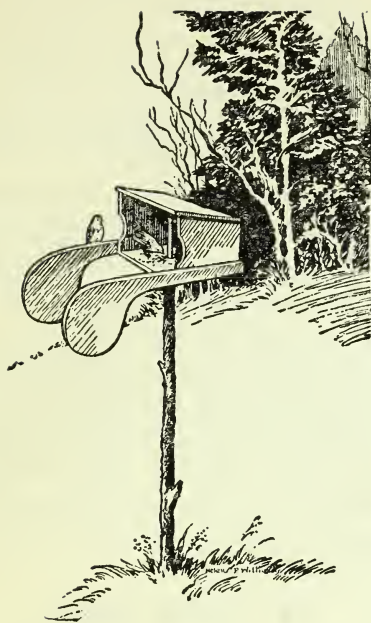


Figure 11.—Revolving food house.

the seed eaters largely patronize weeds, which there is no desire to encourage, whereas the fruit eaters depend upon many plants that are held in such esteem for their ornamental value that they are generally cultivated.

FOR SEED EATERS

Something can be done, however, to attract goldfinches, siskins, juncos, the sparrow tribe in general, and other seed eaters. A number of commonly cultivated annual plants, belonging to the same groups as those upon which the birds feed extensively in nature, produce good crops of seeds and, being dependent upon cultivation, can be used without fear that they will become pests. The following are suggested: Princesfeather (*Amaranthus hypochondriacus*), love-lies-bleeding (*A. candatus*), asters, rockpurslanes (*Calandrinia*), blessed thistle (*Cnicus benedictus*), centaureas, California-poppies

(*Eschscholtzia*), cosmos, marigold, sunflowers, tarweed (*Madia elegans*), forget-me-nots, princesplume (*Polygonum orientale*), sacaline (*P. sachalinense*), portulaca, silene, varieties of sorghum (kafir, milo, sorgo, and others), and zinnia.

The various millets and similar seeds are relished by nearly all seed-eating birds. Barnyard grass, or Japanese millet (*Echinochloa crusgalli*), and foxtail, or German millet or Hungarian grass (*Setaria italica*), may be obtained from most seedsmen and should be planted in abundance by those wishing to attract granivorous birds. Barnyard grass holds its seeds well and if planted thickly where it can grow up through a horizontal latticework makes a valuable cover and feeding place for winter birds. The height and stiffness of stalk of sorghums should make these abundant seeders valuable in winter. Canary grass (*Phalaris canariensis*) and various species of *Pennisetum* (pearl millet, fountain grass, and others) also are good for seed-eating birds.

A phase of feeding seed-eating birds, namely, the planting of food patches for game, which incidentally benefits other wildlife, nowadays receives a great deal of attention. The plants recommended as most valuable for this use are locally adapted strains of the following crop plants: Alfalfa, beggarweed, buckwheat, bur-clover, chufa, clover, corn, cowpea, flax, hemp, lespedeza, millet, oats, peanut, rice (upland), rye, sesame, sesbania, sorghum, soybean, Sudan grass, sunflower, vetch, wheat, and winter pea.

Alders and birches bear in their numerous cones a supply of seeds that are eagerly sought by redpolls, siskins, and goldfinches during winter. The winged fruits of ashes and boxelders are opened and the seeds eaten by pine and evening gros-

beaks, the visits of these birds being largely regulated by the supply of this kind of food. Elms, which produce each year the earliest crop of tree seeds, are spring cafeterias for goldfinches and purple finches. Larches, pines, and other conifers are attractive to crossbills, as well as to some of the species just mentioned. Oaks and beeches are so important to woodpeckers and jays as often to decide the distribution of these birds, especially in winter; their acorns and nuts are useful also to nuthatches, grackles, crows, and game birds.

FOR FRUIT EATERS

Feeding fruit-eating birds is best accomplished by planting selected species of fruit-bearing shrubs and trees. Through late spring and summer there is usually an abundance of insect food in addition to fruit enough for all the birds. So far as fruit alone is concerned, fall is the season of overflowing abundance; in winter the supply gradually decreases, and late in winter and early in spring there is usually actual scarcity. This is the critical time of year for many birds, and a plentiful supply of wild fruit will tide them over. Fortunately, everywhere in the United States there are some fruits that persist until there is no longer any need for them, and if enough trees and shrubs that produce them are planted, no birds able to live on this class of food should starve. The best of these long-persisting fruits are those of juniper, hackberry, bayberry, thorn apple, flowering apple, mountain-ash, holly, Virginia creeper, dogwood, sour gum, persimmon, snowberry, and bush honeysuckle.

Measured by the number of species of birds known to feed upon them, the following fruits are the most popular:

Fruits Most Popular With Birds

Taken by 100 or more species:

Raspberry and blackberry genus, elderberry.

Taken by 50 to 99 species:

Juniper and red cedar genus, bayberry, mulberry, pokeberry, strawberry, sumac, grape, dogwood, and blueberry.

Taken by 35 to 49 species:

Greenbrier, hackberry, crab and flowering apple genus, juneberry, thorn apple, rose, crowberry, holly, Virginia creeper, sour gum, bearberry and manzanita genus, huckleberry, snowberry, and viburnum (blackhaw, cranberrybush, and others).

Species of these and other groups of plants suitable for use in attracting birds in 10 regions of the United States (fig. 12) are recommended in Conservation Bulletin 7, Plants Useful in Upland Wildlife Management, which may be obtained on request to the Fish and Wildlife Service, Washington 25, D. C.

FOR FLOWER SEEKERS

Hummingbirds, the principal flower seekers, are readily attracted by cultivated blossoms, of which they seem to prefer those that are red, orange, or purple in color. Some rather generally cultivable flowers that are notably attractive to hummingbirds are: Daylilies (*Hemerocallis*), lilies (*Lilium*), canas, bouncingbet (*Saponaria officinalis*), spiderflower (*Cleome*), silktree (*Albizzia*), red buckeye (*Aesculus pavia*), morning-glories (*Ipomoea*), petunias, beebalms (*Monarda*), scarlet sage (*Salvia splendens*), and honeysuckles (*Lonicera*). Jewelweed (*Impatiens biflora*), a species occurring from Newfoundland and Saskatchewan to Nebraska and Florida, and trumpet-creeper (*Bignonia radicans*), ranging from New Jersey and Illinois south to Florida and Texas, are well-known favorites of hummingbirds. In southern Florida the scarletbush (*Hamelia patens*) and the royal poinciana (*Poinciana regia*) are noted as hosts to these vividly colored little birds; in southern California, the

silk-oaks (*Grevillea*), various species of *Eucalyptus*, tree tobacco (*Nicotiana glauca*), cape-honeysuckle (*Tecomaria capensis*), and coralbells (*Heuchera sanguinea*); and in both regions, the scarlet rosemallow (*Hibiscus coccineus*), purple cestrum (*Cestrum elegans*), common lantana (*Lantana camara*), fuchsias, butterflybushes (*Buddleia*), and jasmines (*Jasminum*).

FOR WATERFOWL

Planting to augment the food supply and cover for waterfowl has been the subject of a number of publications prepared in the Fish and Wildlife Service, one of

which, Wildlife Leaflet 223, Natural Plantings for Attracting Waterfowl to Marsh and Other Water Areas, is available for distribution. The principal plants recommended include muskgrasses, wigwongrass, sago pondweed and other pondweeds, wildcelery, duckpotatoes, wildrice, wild millet, bulrushes, chufa, duckweeds, coontail waterlilies, and watercress. Information about planting these and other marsh and water plants and a list of dealers in duck-food plants may be obtained by writing to the Fish and Wildlife Service, United States Department of the Interior, Washington 25, D. C.

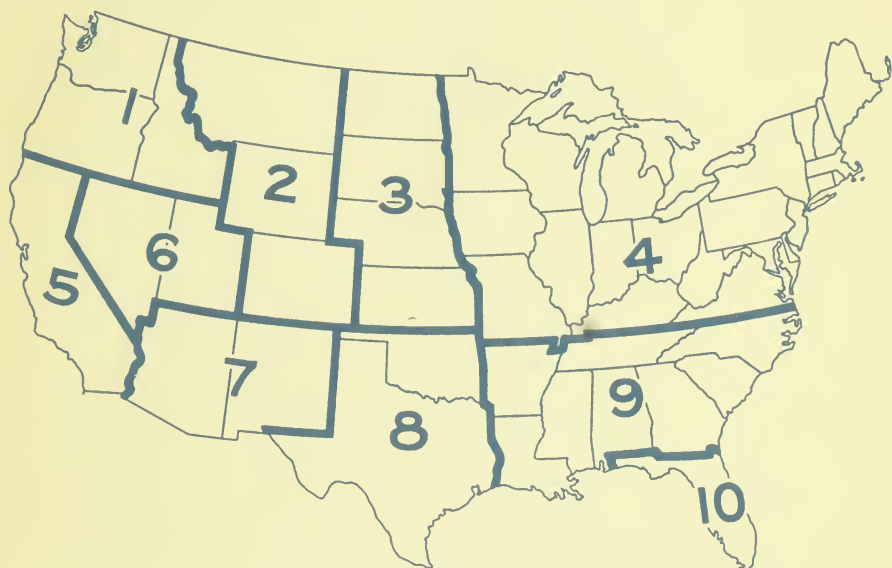


Figure 12.—Regions of the United States for which information on plants suitable for attracting birds is available.

